

## SEQUENCE LISTING

AP20 Rec'd PCT/PTO 15 JUN 2006

&lt;110&gt; President and Fellows of Harvard College , et al.

<120> MODULATION OF IMMUNE SYSTEM FUNCTION BY:  
MODULATION OF POLYPEPTIDE ARGININE METHYLTRANSFERASES

&lt;130&gt; HUI-054PC

&lt;140&gt; 60/531,482

&lt;141&gt; 2003-12-18

&lt;160&gt; 24

&lt;170&gt; FastSEQ for Windows Version 4.0

&lt;210&gt; 1

&lt;211&gt; 1946

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 1

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BEST AVAILABLE COPY

&lt;210&gt; 2

&lt;211&gt; 412

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 2

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<212> DNA  
<213> Mus musculus

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&lt;211&gt; 717

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 4

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&lt;211&gt; 3419

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 5

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aaccgttctc cagcatggca tccctccatcg caatccacag gcccaacact cggcctagg 3419

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&lt;210&gt; 6

&lt;211&gt; 1064

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 6

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Met Asp Val Pro Glu Pro Gln Pro Asp Pro Asp Gly Gly Asp Gly Pro
1          5          10          15
Gly His Glu Pro Gly Gly Ser Pro Gln Asp Glu Leu Asp Phe Ser Ile
20          25          30
Leu Phe Asp Tyr Asp Tyr Leu Asn Pro Ile Glu Glu Glu Pro Ile Ala
35          40          45
His Lys Ala Ile Ser Ser Pro Ser Gly Leu Ala Tyr Pro Asp Asp Val
50          55          60

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Leu	Asp	Tyr	Gly	Leu	Lys	Pro	Cys	Asn	Pro	Leu	Ala	Ser	Leu	Ser	Gly
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Glu	Pro	Pro	Gly	Arg	Phe	Gly	Glu	Pro	Asp	Ser	Ile	Gly	Phe	Gln	Asn
				85					90					95	
Phe	Leu	Ser	Pro	Val	Lys	Pro	Ala	Gly	Ala	Ser	Gly	Pro	Ser	Pro	Arg
			100					105					110		
Ile	Glu	Ile	Thr	Pro	Ser	His	Glu	Leu	Met	Gln	Ala	Gly	Gly	Ala	Leu
		115					120					125			
Arg	Gly	Arg	Asp	Ala	Gly	Leu	Ser	Pro	Glu	Gln	Pro	Ala	Leu	Ala	Leu
	130					135					140				
Ala	Gly	Val	Ala	Ala	Ser	Pro	Arg	Phe	Thr	Leu	Pro	Val	Pro	Gly	Tyr
	145				150					155					160
Glu	Gly	Tyr	Arg	Glu	Pro	Leu	Cys	Leu	Ser	Pro	Ala	Ser	Ser	Gly	Ser
			165					170						175	
Ser	Ala	Ser	Phe	Ile	Ser	Asp	Thr	Phe	Ser	Pro	Tyr	Thr	Ser	Pro	Cys
			180					185					190		
Val	Ser	Pro	Asn	Asn	Ala	Gly	Pro	Asp	Asp	Leu	Cys	Pro	Gln	Phe	Gln
		195					200					205			
Asn	Ile	Pro	Ala	His	Tyr	Ser	Pro	Arg	Thr	Ser	Pro	Ile	Met	Ser	Pro
	210					215					220				
Arg	Thr	Ser	Leu	Ala	Glu	Asp	Ser	Cys	Leu	Gly	Arg	His	Ser	Pro	Val
	225				230					235					240
Pro	Arg	Pro	Ala	Ser	Arg	Ser	Ser	Ser	Pro	Gly	Ala	Lys	Arg	Arg	His
			245					250					255		
Ser	Cys	Ala	Glu	Ala	Leu	Val	Ala	Pro	Leu	Pro	Ala	Ala	Ser	Pro	Gln
			260					265					270		
Arg	Ser	Arg	Ser	Pro	Ser	Pro	Gln	Pro	Ser	Pro	His	Val	Ala	Pro	Gln
		275					280					285			
Asp	Asp	Ser	Ile	Pro	Ala	Gly	Tyr	Pro	Pro	Thr	Ala	Gly	Ser	Ala	Val
	290					295					300				
Leu	Met	Asp	Ala	Leu	Asn	Thr	Leu	Ala	Thr	Asp	Ser	Pro	Cys	Gly	Ile
	305				310					315				320	
Pro	Ser	Lys	Ile	Trp	Lys	Thr	Ser	Pro	Asp	Pro	Thr	Pro	Val	Ser	Thr
			325						330					335	
Ala	Pro	Ser	Lys	Ala	Gly	Leu	Ala	Arg	His	Ile	Tyr	Pro	Thr	Val	Glu
			340					345					350		
Phe	Leu	Gly	Pro	Cys	Glu	Gln	Glu	Glu	Arg	Arg	Asn	Ser	Ala	Pro	Glu
		355					360					365			
Ser	Ile	Leu	Leu	Val	Pro	Pro	Thr	Trp	Pro	Lys	Gln	Leu	Val	Pro	Ala
	370					375					380				
Ile	Pro	Ile	Cys	Ser	Ile	Pro	Val	Thr	Ala	Ser	Leu	Pro	Pro	Leu	Glu
	385				390					395					400
Trp	Pro	Leu	Ser	Asn	Gln	Ser	Gly	Ser	Tyr	Glu	Leu	Arg	Ile	Glu	Val
			405						410					415	
Gln	Pro	Lys	Pro	His	His	Arg	Ala	His	Tyr	Glu	Thr	Glu	Gly	Ser	Arg
			420					425					430		
Gly	Ala	Val	Lys	Ala	Pro	Thr	Gly	Gly	His	Pro	Val	Val	Gln	Leu	His
		435					440					445			
Gly	Tyr	Met	Glu	Asn	Lys	Pro	Leu	Gly	Leu	Gln	Ile	Phe	Ile	Gly	Thr
	450					455					460				
Ala	Asp	Glu	Arg	Ile	Leu	Lys	Pro	His	Ala	Phe	Tyr	Gln	Val	His	Arg
	465				470					475					480
Ile	Thr	Gly	Lys	Thr	Val	Thr	Thr	Thr	Ser	Tyr	Glu	Lys	Ile	Val	Gly
			485						490					495	
Asn	Thr	Lys	Val	Leu	Glu	Ile	Pro	Leu	Glu	Pro	Lys	Asn	Asn	Met	Arg
			500					505					510		
Ala	Thr	Ile	Asp	Cys	Ala	Gly	Ile	Leu	Lys	Leu	Arg	Asn	Ala	Asp	Ile
		515					520					525			
Glu	Leu	Arg	Lys	Gly	Glu	Thr	Asp	Ile	Gly	Arg	Lys	Asn	Thr	Arg	Val
	530					535					540				

Arg	Leu	Val	Phe	Arg	Val	His	Val	Pro	Glu	Pro	Ser	Gly	Arg	Ile	Val
545					550					555					560
Ser	Leu	Gln	Ala	Ala	Ser	Asn	Pro	Ile	Glu	Cys	Ser	Gln	Arg	Ser	Ala
			565						570						575
His	Glu	Leu	Pro	Met	Val	Glu	Arg	Gln	Asp	Met	Asp	Ser	Cys	Leu	Val
			580					585					590		
Tyr	Gly	Gly	Gln	Gln	Met	Ile	Leu	Thr	Gly	Gln	Asn	Phe	Thr	Ala	Glu
	595						600					605			
Ser	Lys	Val	Val	Phe	Met	Glu	Lys	Thr	Thr	Asp	Gly	Gln	Gln	Ile	Trp
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Glu	Met	Glu	Ala	Thr	Val	Asp	Lys	Asp	Lys	Ser	Gln	Pro	Asn	Met	Leu
625					630					635					640
Phe	Val	Glu	Ile	Pro	Glu	Tyr	Arg	Asn	Lys	His	Ile	Arg	Val	Pro	Val
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Lys	Val	Asn	Phe	Tyr	Val	Ile	Asn	Gly	Lys	Arg	Lys	Arg	Ser	Gln	Pro
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Gln	His	Phe	Thr	Tyr	His	Pro	Val	Pro	Ala	Ile	Lys	Thr	Glu	Pro	Ser
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Asp	Glu	Tyr	Glu	Pro	Ser	Leu	Ile	Cys	Ser	Pro	Ala	His	Gly	Gly	Leu
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Gly	Ser	Gln	Pro	Tyr	Tyr	Pro	Gln	His	Pro	Met	Leu	Ala	Glu	Ser	Pro
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Ser	Cys	Leu	Val	Ala	Thr	Met	Ala	Pro	Cys	Gln	Gln	Phe	Arg	Ser	Gly
			725					730						735	
Leu	Ser	Ser	Pro	Asp	Ala	Arg	Tyr	Gln	Gln	Gln	Ser	Pro	Ala	Ala	Ala
			740					745					750		
Leu	Tyr	Gln	Arg	Ser	Lys	Ser	Leu	Ser	Pro	Gly	Leu	Leu	Gly	Tyr	Gln
		755					760					765			
Gln	Pro	Ser	Leu	Leu	Ala	Ala	Pro	Leu	Gly	Leu	Ala	Asp	Ala	His	Arg
	770					775					780				
Ser	Val	Leu	Val	His	Ala	Gly	Ser	Gln	Gly	Gln	Gly	Gln	Gly	Ser	Thr
785					790					795					800
Leu	Arg	His	Thr	Ser	Ser	Ala	Ser	Gln	Gln	Ala	Ser	Pro	Val	Ile	His
			805						810					815	
Tyr	Ser	Pro	Thr	Asn	Gln	Gln	Leu	Arg	Gly	Gly	Gly	His	Gln	Glu	Phe
			820					825					830		
Gln	His	Ile	Met	Tyr	Cys	Glu	Asn	Phe	Gly	Pro	Ser	Ser	Ala	Arg	Pro
		835					840					845			
Gly	Pro	Pro	Pro	Ile	Asn	Gln	Gly	Gln	Arg	Leu	Ser	Pro	Gly	Ala	Tyr
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Pro	Thr	Val	Ile	Gln	Gln	Gln	Thr	Ala	Pro	Ser	Gln	Arg	Ala	Ala	Lys
865					870					875					880
Asn	Gly	Pro	Ser	Asp	Gln	Lys	Glu	Ala	Leu	Pro	Thr	Gly	Val	Thr	Val
			885						890					895	
Lys	Gln	Glu	Gln	Asn	Leu	Asp	Gln	Thr	Tyr	Leu	Asp	Asp	Ala	Ala	Thr
		900						905					910		
Ser	Glu	Ser	Trp	Val	Gly	Thr	Glu	Arg	Tyr	Ile	Glu	Arg	Lys	Phe	Trp
	915						920						925		
Lys	Lys	Thr	Leu	Val	Gln	Pro	Gly	Leu	Leu	Pro	Ser	Phe	Leu	Leu	Leu
	930					935					940				
Gly	Ser	Leu	Ser	Ala	Gly	Pro	Arg	Ser	Gln	Thr	Pro	Ser	Glu	Arg	Lys
945					950					955					960
Pro	Ile	Glu	Glu	Asp	Val	Pro	Leu	Ser	Cys	Ser	Gln	Ile	Ala	Trp	Cys
			965						970					975	
Cys	Gln	His	Pro	Leu	Gly	Thr	Cys	Pro	Val	Leu	Pro	Gly	Pro	Leu	Ala
			980					985					990		
Val	Glu	Trp	Trp	Glu	Gly	Gln	Leu	Gly	Arg	Gly	Leu	Glu	Pro	Ile	Pro
	995						1000					1005			
Trp	Ala	Pro	Asp	Ser	Ala	Gly	Ser	Leu	His	Glu	Val	Asp	Ser	Val	Gly
1010						1015					1020				



Leu Ala Gly Val Val Gly Met Val Leu Leu Thr Leu Met His His Phe  
 1025 1030 1035 1040  
 Ser Met Asp Gln Asn Gln Thr Pro Ser Pro His Trp Gln Arg His Lys  
 1045 1050 1055  
 Glu Val Ala Ser Pro Gly Trp Ile  
 1060

&lt;210&gt; 7

&lt;211&gt; 3638

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 7

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&lt;210&gt; 8

&lt;211&gt; 1075

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 8

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Met Thr Thr Ala Asn Cys Gly Ala His Asp Glu Leu Asp Phe Lys Leu
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Val Phe Gly Glu Asp Gly Ala Pro Ala Pro Pro Pro Pro Gly Ser Arg
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Pro Ala Asp Leu Glu Pro Asp Asp Cys Ala Ser Ile Tyr Ile Phe Asn
35     40     45
Val Asp Pro Pro Pro Ser Thr Leu Thr Thr Pro Leu Cys Leu Pro His
50     55     60
His Gly Leu Pro Ser His Ser Ser Val Leu Ser Pro Ser Phe Gln Leu
65     70     75     80
Gln Ser His Lys Asn Tyr Glu Gly Thr Cys Glu Ile Pro Glu Ser Lys
85     90     95
Tyr Ser Pro Leu Gly Gly Pro Lys Pro Phe Glu Cys Pro Ser Ile Gln
100    105    110
Phe Thr Ser Ile Ser Pro Asn Cys Gln Gln Glu Leu Asp Ala His Glu
115    120    125
Asp Asp Leu Gln Ile Asn Asp Pro Glu Arg Glu Phe Leu Glu Arg Pro
130    135    140
Ser Arg Asp His Leu Tyr Leu Pro Leu Glu Pro Ser Tyr Arg Glu Ser
145    150    155    160
Ser Leu Ser Pro Ser Pro Ala Ser Ser Ile Ser Ser Arg Ser Trp Phe
165    170    175
Ser Asp Ala Ser Ser Cys Glu Ser Leu Ser His Ile Tyr Asp Asp Val
180    185    190
Asp Ser Glu Leu Asn Glu Ala Ala Arg Phe Thr Leu Gly Ser Pro
195    200    205
Leu Thr Ser Pro Gly Gly Ser Pro Gly Gly Cys Pro Gly Glu Glu Ser
210    215    220
Trp His Gln Gln Tyr Gly Ser Gly His Ser Leu Ser Pro Arg Gln Ser
225    230    235    240
Pro Cys His Ser Pro Arg Ser Ser Ile Thr Asp Glu Asn Trp Leu Ser
245    250    255
Pro Arg Pro Ala Ser Gly Pro Ser Ser Arg Pro Thr Ser Pro Cys Gly
260    265    270
Lys Arg Arg His Ser Ser Ala Glu Val Cys Tyr Ala Gly Ser Leu Ser
275    280    285
Pro His His Ser Pro Val Pro Ser Pro Gly His Ser Pro Arg Gly Ser
290    295    300

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Leu	Ser	Pro	Ala	Pro	Phe	Pro	Phe	Gln	Tyr	Cys	Val	Glu	Thr	Asp	Ile
				325					330					335	
Pro	Leu	Lys	Thr	Arg	Lys	Thr	Ser	Glu	Asp	Gln	Ala	Ala	Ile	Leu	Pro
			340					345					350		
Gly	Lys	Leu	Glu	Ile	Cys	Ser	Asp	Asp	Gln	Gly	Asn	Leu	Ser	Pro	Ser
		355					360				365				
Arg	Glu	Thr	Ser	Val	Asp	Asp	Gly	Leu	Gly	Ser	Gln	Tyr	Pro	Leu	Lys
370					375						380				
Lys	Asp	Ser	Ser	Gly	Asp	Gln	Phe	Leu	Ser	Val	Pro	Ser	Pro	Phe	Thr
385					390					395					400
Trp	Ser	Lys	Pro	Lys	Pro	Gly	His	Thr	Pro	Ile	Phe	Arg	Thr	Ser	Ser
			405						410					415	
Leu	Pro	Pro	Leu	Asp	Trp	Pro	Leu	Pro	Thr	His	Phe	Gly	Gln	Cys	Glu
			420					425					430		
Leu	Lys	Ile	Glu	Val	Gln	Pro	Lys	Thr	His	His	Arg	Ala	His	Tyr	Glu
		435					440					445			
Thr	Glu	Gly	Ser	Arg	Gly	Ala	Val	Lys	Ala	Ser	Thr	Gly	Gly	His	Pro
450					455						460				
Val	Val	Lys	Leu	Leu	Gly	Tyr	Ser	Glu	Lys	Pro	Ile	Asn	Leu	Gln	Met
465					470					475					480
Phe	Ile	Gly	Thr	Ala	Asp	Asp	Arg	Tyr	Leu	Arg	Pro	His	Ala	Phe	Tyr
				485				490						495	
Gln	Val	His	Arg	Ile	Thr	Gly	Lys	Thr	Val	Ala	Thr	Ala	Ser	Gln	Glu
			500					505					510		
Ile	Ile	Ile	Ala	Ser	Thr	Lys	Val	Leu	Glu	Ile	Pro	Leu	Leu	Pro	Glu
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Asn	Ser	Asp	Ile	Glu	Leu	Arg	Lys	Gly	Glu	Thr	Asp	Ile	Gly	Arg	Lys
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Asn	Thr	Arg	Val	Arg	Leu	Val	Phe	Arg	Val	His	Ile	Pro	Gln	Pro	Ser
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Gly	Lys	Val	Leu	Ser	Leu	Gln	Ile	Ala	Ser	Ile	Pro	Val	Glu	Cys	Ser
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Gln	Arg	Ser	Ala	Gln	Glu	Leu	Pro	His	Ile	Glu	Lys	Tyr	Ser	Ile	Asn
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Ser	Cys	Ser	Val	Asn	Gly	Gly	His	Glu	Met	Ile	Val	Thr	Gly	Ser	Asn
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Phe	Leu	Pro	Glu	Ser	Lys	Ile	Ile	Phe	Leu	Glu	Lys	Gly	Gln	Asp	Gly
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Gly	Pro	His	Trp	Glu	Val	Glu	Gly	Lys	Ile	Ile	Arg	Glu	Lys	Cys	Gln
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Gly	Ala	His	Ile	Val	Leu	Glu	Val	Pro	Pro	Tyr	His	Asn	Pro	Ala	Val
		660					665						670		
Thr	Ser	Ala	Val	Gln	Val	His	Phe	Tyr	Leu	Cys	Asn	Gly	Lys	Arg	Lys
		675					680					685			
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&lt;212&gt; DNA

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	530															



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